

Heart Disease of Refugees in Morocco (Retrospective study from January 2016 to December 2018 about 400 Patients)

Y.Kettani, S.Hallab, S.Belahnech and M.Cherti
Cardiology B, Ibn Sina Hospital, Rabat-Morocco.

ARTICLE INFO

Article history:

Received: 8 March 2019;

Received in revised form:

16 April 2019;

Accepted: 26 April 2019;

Keywords

Cardiovascular Risk Assessment, Cardiovascular Disease, Refugee, Primary Health Care, Morocco, World Health Organization Package of Essential NCD Interventions for Primary Health Care in Low Resource Settings.

ABSTRACT

The growing burden of non-communicable diseases (NCDs) presented new challenges for medical humanitarian aid and little was known about primary health care approaches for these diseases in humanitarian response. We aimed to evaluate UNHCR's use of total CVD risk based prevention strategies amongst refugees in Morocco to identify opportunities to improve total CVD risk based guidance for humanitarian settings. We evaluated CVD risk assessment and management in two outpatient NCD clinics in Morocco using a mixed methods design with qualitative and quantitative strands of equal priority. Integrate during data collection and interpretation during three years. We reviewed the clinical records of 400 patients. The number of consultations has increased by half between 2016 and 2018. The average age of the patients was 48 +/- 12.6 with a predominance of patients in the age group between 40 and 50. The sex ratio was 1,7 of men, the majority of patients consulted once time, the country of origin was Syria in 40% of cases, the most risk factor founded was hypertension in almost 70% of case, a history of coronary artery disease was present in almost 6% of cases, chest pain was the most frequent reason for consultation followed by headache, and the diagnosis was arterial hypertension in 58% of cases followed by ischemic heart disease In 26% of cases. All patients underwent a complete clinical examination, with an electrocardiogram based on the indications; echocardiography was performed in 37% of patients and coronarography in 10% with surgery in 1.5% and catheter intervention in 1.5% of cases. Most patients had at least one medical treatment to take. The high prevalence of unhealthy behaviors and risk factors for Heart disease in refugee groups might be a lifestyle remnant from their country of birth or might be brought about by a stressful migration and acculturation into a new social and cultural environment. Nevertheless, it is important in primary healthcare to be aware of a possible preventable increased risk of unhealthy behaviors and risk factors for heart disease in some immigrants.

© 2019 Elixir All rights reserved.

Introduction

The growing burden of non-communicable diseases (NCDs) has presented new challenges for medical humanitarian aid and recent evidence suggested cardiovascular (CVD) morbidity and mortality increases following humanitarian disaster [1, 2]. Despite this increasing burden, little was known about the management of CVD risk in humanitarian settings and clinical guidance was urgently needed [3–5].

The humanitarian crisis in Syria and in sub saharian countries, and by extension through migration southward Morocco, resulted in an unprecedented burden of NCDs, borne primarily by primary care services. As of April 2016, the United Nations High Commissioner for Refugees had registered 4.8 million Syrian refugees [6], of which over 4000 were registered in Morocco [7]. A survey of Syrian refugees estimated more than half had at least one member with an NCD, [8] and in 2012 almost half (46%) of all adult deaths in Syria were attributable to NCDs [9]. In 2010, emergency action association (EAA) started providing NCD care in two

outpatient primary healthcare clinics in Morocco. Since chronic disease care in Morocco was historically provided at the secondary care level, EAA developed their own total CVD risk-based guidance adapted from the World Health Organization's (WHO) Package of Essential NCD Interventions for Primary Health Care in Low- Resource Settings (WHO PEN) which included World Health Organization/International Society of Hypertension (WHO/ISH). Although the total risk approach for the prevention of CVD is widely accepted in high income countries and has been endorsed by the WHO for low- and middle-income countries, its use in humanitarian settings was unprecedented [12].

We undertook a mixed methods study of EAA's NCD programme to evaluate the use of total CVD risk-based prevention strategies in humanitarian settings and to identify opportunities for improvement.

Methods

It was a prospective study of the medico-social consultation center of the emergency action association, having integrated all the refugee patients who consulted for cardiological opinion over 3 years between January 2016 and December 2018. In total they were 400 consulting patients.

Results

We reviewed the clinical records of 400 patients. The number of consultations has increased by half between 2016 and 2018.

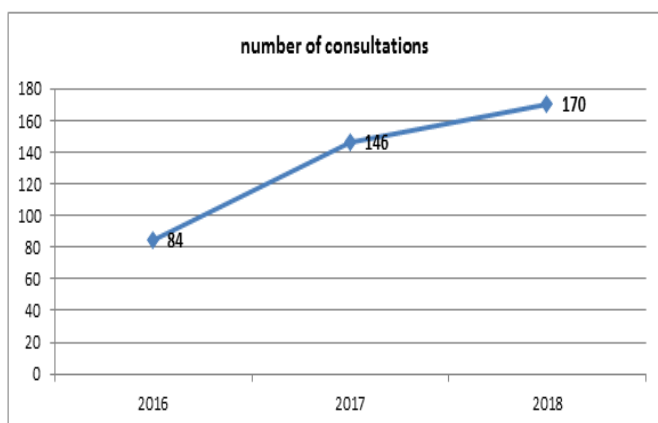


Figure 1. Figure showing the increasing number of consult between 2016 and 2018.

The average age of the patients was 48 +/- 12.6 with a predominance of patients in the age group between 40 and 50 then the age group between 50 and 60 years old.

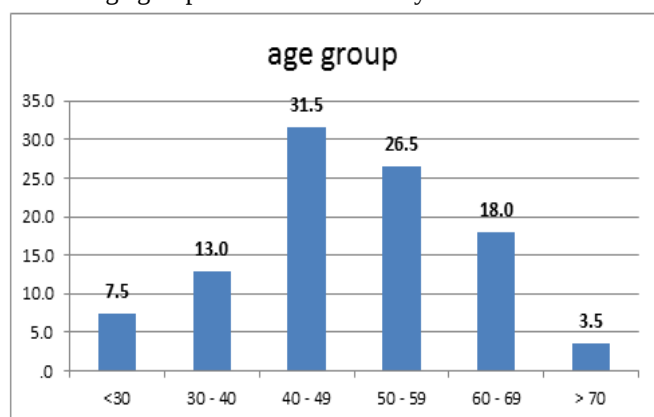


Figure 2. Figure showing the prevalence of age group.

The sex ratio was 1,7 of men, and 63% was men and 37% was women. The majority of patients consulted once time and the country of origin was Syria in 40% of cases.

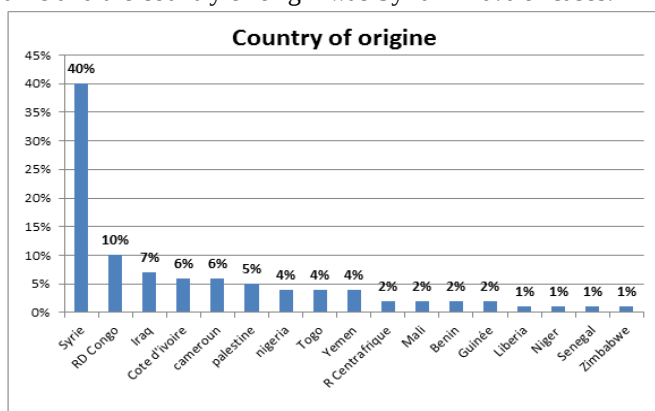


Figure 3. The country of origin.

The most risk factor founded was hypertension in almost 70% of case, a history of coronary artery disease was present in almost 6% of cases.

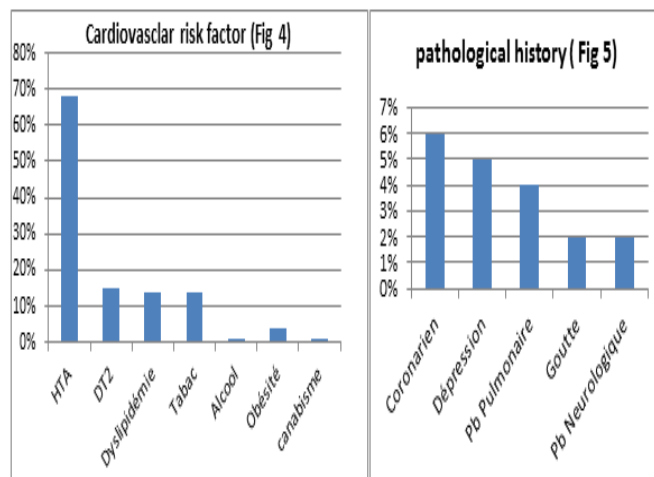


Figure 4 and 5. Figures showing the cardiovascular risk factor and antecedent.

Chest pain was the most frequent reason for consultation in 48% followed by headache in 18% of cases then palpitation in 17% of cases and finally dyspnea in 13% of cases.

The diagnosis was arterial hypertension in 58% of cases followed by ischemic heart disease in 26% of cases.

The hypertension was uncontrolled in 25% of the patient and controlled in 75% of the patient.

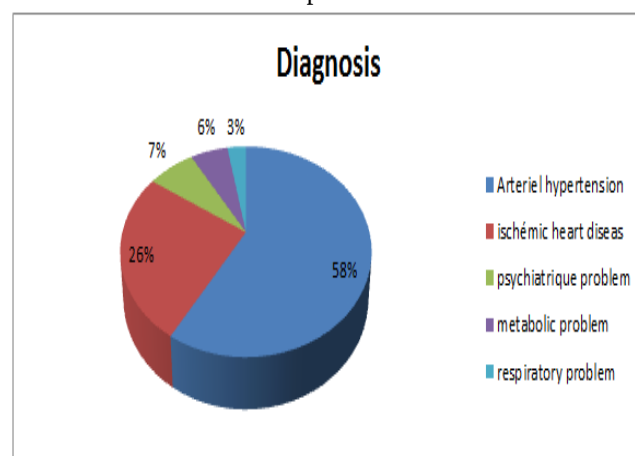


Figure 6. The finals diagnosis are resumed in Figure 6.

All patients underwent a complete clinical examination, with an electrocardiogram based on the indications; echocardiography was performed in 37% of patients and coronarography in 10% with surgery in 1.5% and catheter intervention in 1.5% of cases. Most patients had at least one medical treatment to take.

The crackling rales were present in 5% of cases and edema of the lower limb in 4% the mitral regurgitation in 3% of the cases.

Electrocardiograms show Modification of the ST segment in 12% of cases and Q wave in 5% of the cases.

Echocardiography exams were normal in 35% and shows akinésis and hypokinésis in 35% of the patients having realized Echocardiography, and then dilated cardiomyopathy in 5% and Hypertrophic cardiomyopathy in 6% of the cases.

The anterior interventricular artery was the most founded artery in angiography in 50% of patients having realized angiography then it was tritroncular involvement in 25% of the cases.

And the Salicylic acid was the most prescribed treatment then it was an angiotensin receptor antagonist.

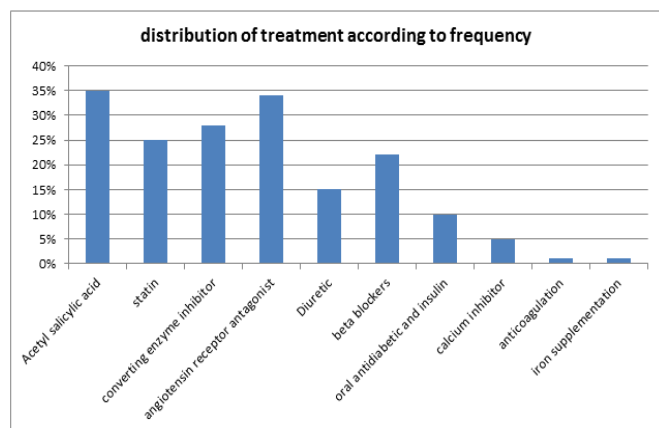


Figure 7. Distribution of treatment according to frequency.

Discussion

The main finding of this study was the strong age adjusted association between the country of birth and unhealthy behaviors such as smoking and physical inactivity. In particular, immigrant women had an increased risk of obesity. In a main effect model, also adjusting for the level of education, occupational status and social network, the differences in risk persisted in the majority of groups. In addition, there was a weaker association between the country of birth and other CHD risk factors such as hypertension and diabetes.

Our findings were partly in agreement with a study using data from the Third National Health and Nutrition Examination Survey III (NHANES III), which revealed that most cardiovascular disease risk factors were higher among female Mexican Americans than among women from the majority population after accounting for years of education [14]. The finding that all immigrant men had high PR of smoking after accounting for education, employment and social network, was in agreement with other studies from Sweden [15, 16]. The finding of low smoking prevalence among women born in Iran partly agreed with such studies [15, 16].

The findings of a higher risk of obesity in immigrant women in the present study also agreed with those in other studies [17, 18]. For example, female Ivoirians refugees had higher risks of obesity than their Moroccan counterparts [18]. The higher prevalence of obesity in Ivoirians and Syrians women might be related to dietary habits, but also to climate changes leading to low physical activity, as seen in the majority of female immigrant groups. In many countries, the price of fruit and vegetables is low compared with meat and milk products, but the price levels in Morocco are favorable for meat and milk products. Therefore, after migrating to Morocco and going from a diet based on fruit and vegetables to a fast or junk food-oriented diet or a diet based on meat and milk products, there is an apparent risk of worsened dietary habits as described earlier in the literature [19].

The finding of a high level of physical inactivity in immigrant women may be influenced by lifestyle habits and the culture of the country of birth, in combination with changes in connection with migration and the acculturation into a new society [21]. The risk of hypertension remained significant among Finnish women after accounting for socioeconomic factors, a finding in agreement with a previous study from Stockholm [16].

Only Finnish and Turkish women had a higher age adjusted risk of diabetes than Swedish women.

These differences disappeared in the main effect model. In a recent Swedish study [4], the CHD risk was increased in the majority of immigrant groups after accounting for age, education and employment. By comparing these morbidity data with the results of this study, we might acquire an increased understanding of some possible pathways between high PR of smoking, physical inactivity and obesity and CHD by sex in immigrant groups. Other well-known risk and protective factors are not analyzed in this study, for example, dietary habits, psychosocial stress or psychological well-being, the absence or presence of hyperlipidemia and a family history of these diseases. All these factors might have had an influence on our results.

Mechanisms

The process of migration [22, 23] involves major changes such as social, familial, work and economic disruption, which may cause migration stress that influences health behaviors (e.g. smoking, obesity and physical inactivity) and CHD risk factors (e.g. hypertension, diabetes). In addition, acculturative stress because of the adaptation and integration into a new social and cultural environment may modify behavior and CHD risk factors that the immigrant brings from their country of birth. Other modifying factors are the healthy migrant effect, which implies that immigrants constitute a selected subpopulation with the strength and health to go through the stressful migration process.

International studies have shown that factors related to the integration and adaptation to the new country influence behavioral and CHD risk factors. For example, data from the National Longitudinal Study of Adolescent Health suggested rapid acculturation of obesity-related behaviors, such as poor diet, smoking and inactivity, in US-born relatives of foreign-born immigrants. Foreign born immigrants were more likely to have a lower family income and to live in immigrant-dense neighborhoods and greater linguistic isolation, with a negative influence on behavioral risk factors [24]. In addition, findings from the San Antonio Heart Study [25] suggested that such culturally mediated factors as acculturation exert a more pervasive influence on obesity and diabetes in Mexican Americans than do socioeconomically mediated factors. In this study, it was not possible to adjust for acculturation status, but the time in Morocco, a possible indicator of acculturation, did not alter the CHD risk pattern in immigrants, with the exception of smoking. However the time is longer in Morocco, the lower is risk of smoking. Physical and environmental changes resulting from migration, such as moving to a country with a colder climate, leading to physical inactivity, might also influence the risk factor profiles. Finally, economic factors such as changes in income and food price levels might have an influence on, for example, dietary habits.

Limitations and strengths

This study has several limitations that need to be addressed. In general, negative self-reported conditions tend to be under-reported. Our data were based on self-reports, whether or not foreign-born and Moroccan-born individuals have biases in reporting smoking, physical inactivity, hypertension and diabetes is unclear, given that these concepts may be understood differently in different cultural groups [26]. However, a Canadian study found that the bias regarding self-reported obesity was relatively small [27]. Self-reported data tend to be closer to the mean or the 'desirable' values [28]. There is a tendency to erroneous self-reporting of a 'slim body shape' [9, 12, and 29].

Chronic conditions (e.g. diabetes mellitus) underestimate socioeconomic inequalities and result in an under-reporting of the prevalence [30]. However, self-reports yield an acceptable estimate of the prevalence of hypertension and diabetes [31, 32]. A Swedish study found that self reported physical activity can be assessed in a reliable manner [33], whereas an American study revealed that physical activity reporting is reliable among various women from different racial and ethnic groups [34]. Another limitation is the dichotomization of the questions in this survey, for example, those about smoking; division into 'yes' or 'no' is a rough classification of smokers that may include both moderate and heavy smokers and different types of tobacco. Some immigrant groups may be small in the analyses of outcomes with low prevalence of, for example, diabetes, hypertension and obesity. Combining these individuals into larger regional groups solved the problem of small immigrant groups, although thereby the specificity of each nationality was lost, for example, the OECD, south European and east European groups. Finally, another limitation of this study is the lack of information about dietary habits and hyperlipidemia, important mediators in the pathway between the country of birth and CHD. The limitations of the study are balanced by its strengths. For example, the data were collected in face-to-face interviews by well-trained interviewers. The quality of the variables has been studied in re-interviews and is mostly high [35]. Other advantages are the large sample sizes in most immigrants groups and the low non response rate.

Conclusions

The finding of strong associations between the country of birth and unhealthy behaviors such as smoking, physical inactivity and obesity, which can be linked to previous studies showing higher risks of CHD in several immigrant groups than in the majority population [4], is a challenge for primary care and public health systems. The high prevalence of multiple behavioral risk factors underlines the importance this has for primary care.

References

- Hayman KG, Sharma D, Wardlow RD, Singh S. Burden of cardiovascular morbidity and mortality following humanitarian emergencies: a systematic literature review. *Prehosp Disaster Med.* 2015;30:80–8.
- WHO. Addressing noncommunicable diseases in emergencies [Internet]. 2015 [cited 2016 Nov 28]. Available from: <http://www.who.int/features/2015/ncdemergencies-ukraine/en/>.
- Demaio A, Jamieson J, Horn R, de Courten M, Tellier S. Non-communicable diseases in emergencies: a call to action. *Plos Curr.* 2013;5. <https://www.ncbi.nlm.nih.gov/pubmed/?term=24056956>.
- Ruby A, Knight A, Perel P, Blanchet K, Roberts B. The effectiveness of interventions for non-communicable diseases in humanitarian crises: a systematic review. *Plos One.* United States; 2015;10:e0138303.
- Collins DRJ, Tompson AC, Onakpoya IJ, Roberts N, Ward AM, Heneghan CJ. Global cardiovascular risk assessment in the primary prevention of cardiovascular disease in adults: systematic review of systematic reviews. *BMJ Open.* England; 2017;7:e013650.
- UNHCR. Syria Regional Refugee Response. 2016; Available from: <http://data.unhcr.org/syrianrefugees/regional.php>. Accessed 15 Jan 2017.
- UNHCR. Registered Syrians in Jordan [Internet]. 2016.

Available from: <http://data.unhcr.org/syrianrefugees/download.php?id=10735>. Accessed 12 June 2016.

- Doocy S, Lyles E, Robertson T, Akhu-Zaheya L, Oweis A, Burnham G. Prevalence and care-seeking for chronic diseases among Syrian refugees in Jordan. *BMC Public Health.* England; 2015;15:1097.
- World Health Organization. Syrian Arab Republic [Internet]. 2014. Available from: http://www.who.int/nmh/countries/syr_en.pdf. Accessed 12 June 2016.
- International Society of Hypertension. WHO/ISH Risk prediction charts for 14 WHO epidemiological sub-regions [Internet]. 2007. Available from: http://ishworld.com/downloads/activities/colour_charts_24_Aug_07.pdf. Accessed 12 June 2016.
- WHO. Implementation tools for the package of essential noncommunicable (PEN) disease interventions for primary health care in low-resource settings [Internet]. Geneva, Switzerland; 2013. Available from: http://apps.who.int/iris/bitstream/10665/133525/1/9789241506557_eng.pdf?ua=1&ua=1. Accessed 12 June 2016.
- WHO. Package of essential noncommunicable (PEN) disease interventions for primary health care in low-resource settings [Internet]. Geneva, Switzerland; 2010. Available from: <http://apps.who.int/iris/handle/10665/44260>. Accessed 12 June 2016.
- Winkleby MA, Kraemer HC, Ahn DK, Varady AN. Ethnic and socioeconomic differences in cardiovascular disease risk factors: findings for women from the Third National Health and Nutrition Examination Survey, 1988–1994. *JAMA* 1998; 280:356–362.
- Lindstrom M, Sundquist J. Ethnic differences in daily smoking in Malmö, Sweden. Varying influence of psychosocial and economic factors. *Eur J Public Health* 2002; 12:287–294.
- Tomson Y, Aberg H. Risk factors for cardiovascular disease – a comparison between Swedes and immigrants. *Scand J Prim Health Care* 1994; 12:147–154.
- Sundquist J, Winkleby M. Country of birth, acculturation status and abdominal obesity in a national sample of Mexican-American women and men. *Int J Epidemiol* 2000; 29:470–477.
- Sundquist J, Cmelic-Eng M, Johansson S-E. Body mass index and distribution of body fat in female Bosnian refugees – a study in primary health care. *Public Health* 1999; 113:89–93.
- Dixon LB, Sundquist J, Winkleby M. Differences in energy, nutrient, and food intakes in a US sample of Mexican-American women and men: findings from the Third National Health and Nutrition Examination Survey, 1988–1994. *Am J Epidemiol* 2000; 152:548–557.
- Lindstrom M, Sundquist J. Immigration and leisure-time physical inactivity: a population-based study. *Ethnic Health* 2001; 6:77–85.
- Crespo CJ, Smit E, Carter-Pokras O, Andersen R. Acculturation and leisure-time physical inactivity in Mexican American adults: results from NHANES III, 1988–1994. *Am J Public Health* 2001; 91:1254–1257.
- Sundquist J. Migration and health. Epidemiological studies in Swedish primary health care (dissertation). Studentlitteratur. Lund: University of Lund; 1994.
- Sundquist J, Iglesias E, Isacson A. Migration and health. A study of Latin American refugees, their exile in Sweden

- and repatriation. *Scand J Prim Health Care* 1995; 13:135–140.
- 24 Gordon-Larsen P, Harris KM, Ward DS, Popkin BM. Acculturation and overweight-related behaviors among Hispanic immigrants to the US: the National Longitudinal Study of Adolescent Health. *Soc Sci Med* 2003; 57:2023–2034.
- 25 Hazuda HP, Haffner SM, Stern MP, Eifler CW. Effects of acculturation and socioeconomic status on obesity and diabetes in Mexican Americans. The San Antonio Heart Study. *Am J Epidemiol* 1988; 128:1289–1301.
- 26 Johnson TP, O'Rourke D, Chavez N, Sudman S, Warnecke R, Lacey L, Horm J. Social cognition and responses to survey questions among culturally diverse populations. In: Lyberg LE, Biemer P, Collins M, De Leeuw E, Dippo C, Schwarz N, Trewin D, editors. *Survey measurement and process quality*. New York: John Wiley and Sons; 1997. pp. 87–113.
- 27 Chen Y, Rennie DC, Lockinger LA, Dosman JA. Association between obesity and high blood pressure: reporting bias related to gender and age. *Int J Obes Relat Metab Disord* 1998; 22:771–777.
- 28 Kuskowska-Wolk A, Rossner S. The “true” prevalence of obesity. A comparison of objective weight and height measures versus self-reported and calibrated data. *Scand J Prim Health Care* 1989; 7:79–82.
- 29 Williams R. Health and length of residence among south Asians in Glasgow: a study controlling for age. *J Public Health Med* 1993; 15:52–60.
- 30 Mackenbach JP, Looman CW, van der Meer JB. Differences in the misreporting of chronic conditions, by level of education: the effect on inequalities in prevalence rates. *Am J Public Health* 1996; 86:706–711.
- 31 Goldman N, Lin IF, Weinstein M, Lin YH. Evaluating the quality of self-reports of hypertension and diabetes. *J Clin Epidemiol* 2003; 56:148–154.
- 32 Martin LM, Leff M, Calonge N, Garrett C, Nelson DE. Validation of self-reported chronic conditions and health services in a managed care population. *Am J Prev Med* 2000; 18:215–218.
- 33 Norman A, Bellocco R, Bergstrom A, Wolk A. Validity and reproducibility of self-reported total physical activity – differences by relative weight. *Int J Obes Relat Metab Disord* 2001; 25:682–688.
- 34 Evenson KR, Eyler AA, Wilcox S, Thompson JL, Burke JE. Test-retest reliability of a questionnaire on physical activity and its correlates among women from diverse racial and ethnic groups. *Am J Prev Med* 2003; 25 (3 Suppl. 1):15–22.
- 35 Waˆrneryd. Levnadsfoˆrhaˆllanden. Aˆterintervjustudie i undersoˆkningen av levnadsfoˆrhaˆllanden 1989 (ULF). [Living conditions. Reinterview in ULF 1989], Appendix 12. Statistics Sweden; 1991.